



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

41-05-02

Log Event A

Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-105</u>	Site Number : <u>299-W23-130</u>
N-Coord : <u>35,475</u>	W-Coord : <u>75,726</u>	TOC Elevation : <u>663.00</u>
Water Level, ft :	Date Drilled : <u>Unknown</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>130</u>	

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>5/16/1995</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>40.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>5/17/1995</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>39.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>109.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>5/18/1995</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>124.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>108.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

41-05-02**Log Event A**

Analysis Information

Analyst : D.C. StromswoldData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 8/11/1995**Analysis Notes :**

This borehole was deepened from 75 to 130 ft in 1978 and plugged with cement from 125 to 130 ft.

The well was logged in three runs: run 1 from 0 to 40 ft, run 2 from 39 to 109.5 ft, and run 3 from 124 to 108.5 ft. Counting time at each .5-ft station was 100-s. Gain drifts necessitated energy recalibration during analysis for proper peak identification.

The casing thickness was 0.31 in.; correction factors for 0.33-in. casing were used during analysis.

K-40, U-238, and Th-232 increase in concentration at about 67 ft, probably due to a lithology change. There is also an apparent lithology change in the interval from 52 to 62 ft, which is most obvious on the K-40 curve.

Cs-137 is the only man-made radionuclide observed, with continuous concentrations from the surface to 23.5 ft, from 43.5 to 61 ft, intermittently throughout the borehole, and at the bottom of the borehole. The contamination from 43.5 to 61 ft is near the bottom of the tank.

Log Plot Notes:

Three log data plots are provided. The Cs-137 concentration is provided in a separate plot to present the details of Cs-137 activity and contamination distribution. The error of the Cs-137 activity determination is shown by error bars that represent the 95-percent confidence interval. The calculated MDA is shown on this plot as open circles. If the calculated concentration is less than the MDA, it is considered a non-detect and the concentration is not reported.

A plot of naturally occurring potassium, uranium, and thorium (K-40, U-238, and Th-232) is provided to allow correlation of these data with geologic information. On the Th-232 plot, the MDA value is shown as zero at some depth locations. This zero value was a result of an anomaly in the commercial spectrum analysis software which has been corrected by the vendor. Because the MDA calculation at these few points is not significant relative to the intended use of the plot, the data were not reprocessed and corrected. Therefore, these MDA data points should be ignored.

A combination plot of individual radionuclide activities is provided that includes the total gamma-ray count rate calculated from the spectral data and the WHC Tank Farms gross gamma-ray log data acquired with the gross gamma-ray logging systems.